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ISU's Contributions to Economic Development in Iowa

Michael Crum, VP for Economic Development and Business Engagement

**Presentation for Economic Development
Appropriations Subcommittee
February 17, 2015**

2014 in Review

- ISU Research Park expansion update
- Workiva's IPO of \$100+ million
(last 4 Iowa companies to go public are Ames based; 3 started at Research Park; 2 still there)
- NewLink Genetics: Ebola vaccine and Genentech partnership
- Vermeer's Applied Technology Hub Building
- Harrisvaccines: PEDv vaccine

ISU Research Park Expansion

Today

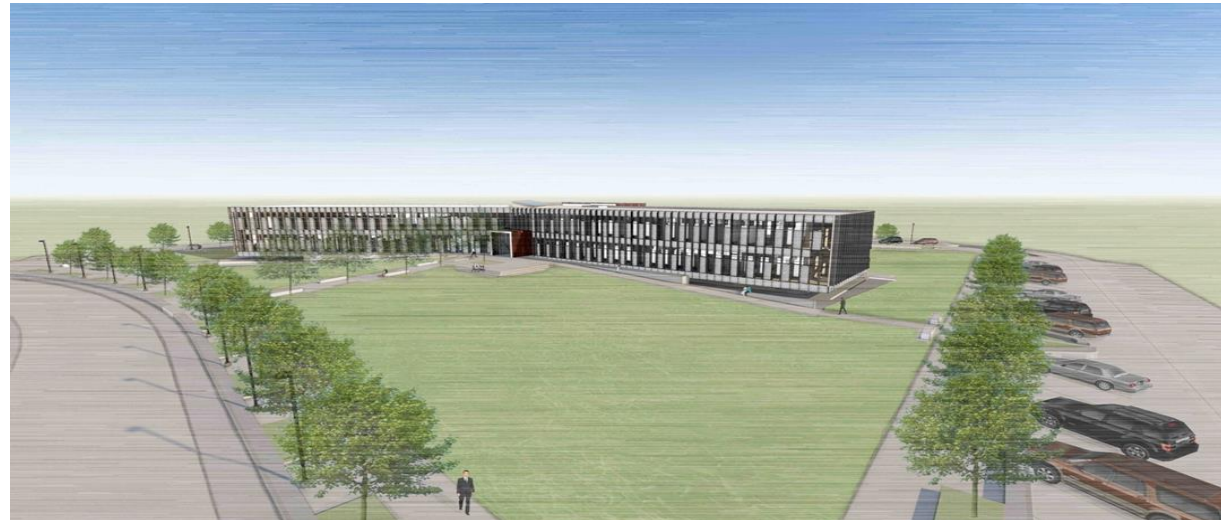
- 10 buildings with 440,000 SF
- 1300+ employees at 63 tenants
- Total salaries exceeding \$70M annually

10 years from now

- 1.8M SF
- More than 6,000 employees
- Total salaries of \$320M annually

Office of Economic Development and Industry Relations Began July 2014

- Center for Industrial Research and Service (CIRAS)
- IPRT Company Assistance (managed by CIRAS)
- ISU Research Foundation/Office of Intellectual Property and Technology Transfer (OIPTT)
- Pappajohn Entrepreneurship Center
- Small Business Development Centers
- Co-locating at ISU Research Park (2016)



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EDIR Impacts

ISU Research Foundation/Office of IP and Technology Transfer

- In FY14 assisted 23 companies file 25 SBIR and STTR proposals – 20 different Iowa companies won 23 awards totaling \$6.2M
- FY10-FY14 impacts:
 - 1,570 sponsored project agreements
 - 530 invention disclosures
 - filed 207 U.S. non-provisional patents; 127 patents issued
 - entered into 334 commercial agreements
 - sales of products containing ISURF licensed technologies were \$311M in Iowa and \$2.7B worldwide

Impacts

Center for Industrial Research and Service – CIRAS (FY14)

- Assisted 1,280 businesses from 94 counties
- Financial impact = \$446 million
 - \$383 million sales gained or retained
 - \$50 million in new investments
 - \$13 million in costs saved or avoided
- Plus 6,795 jobs added or retained

Impacts

CIRAS' IPRT Company Assistance (FY14 Industrial Incentive Program outcomes)

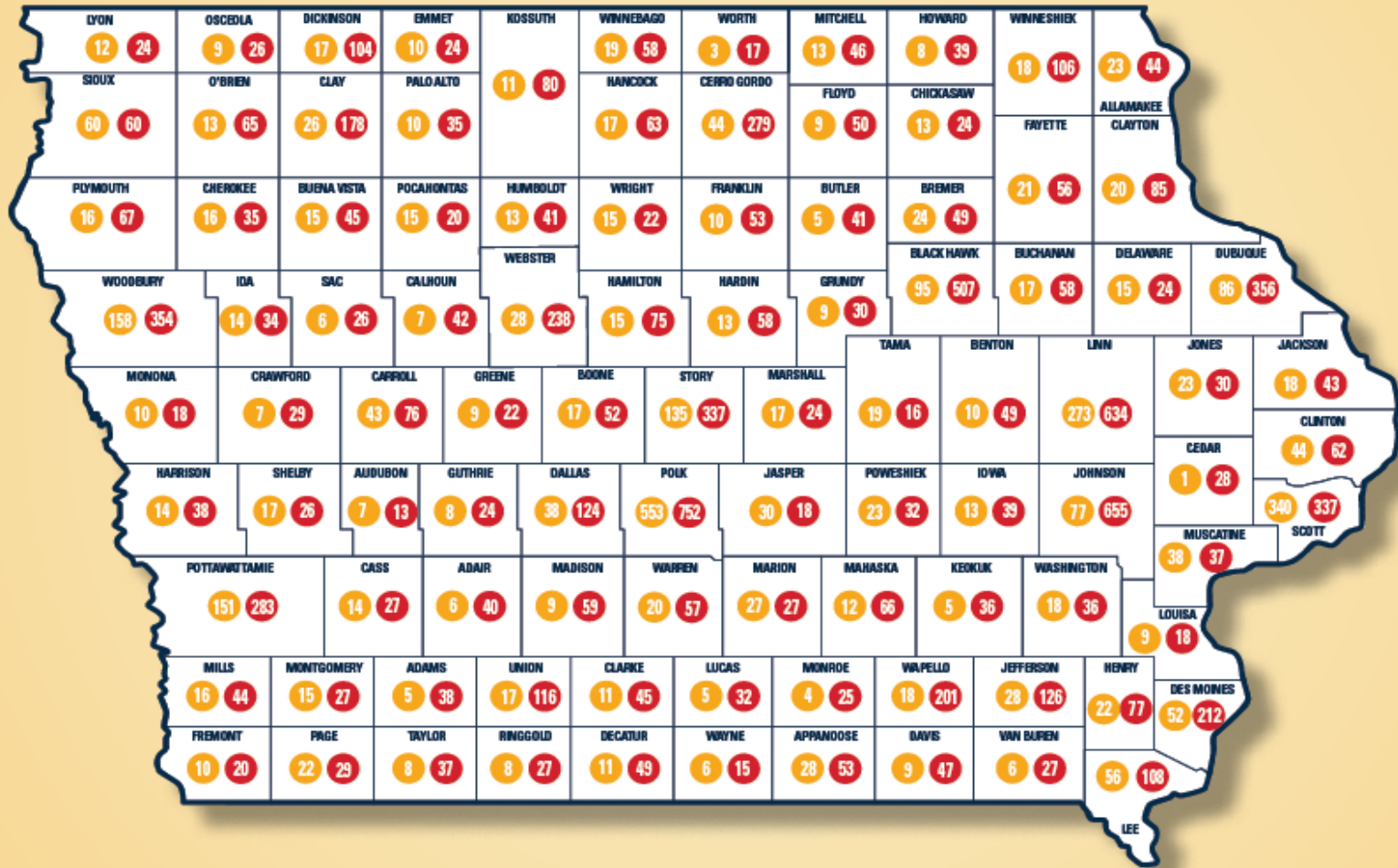
- Eight new IIP research projects initiated (4 with small companies)
- New private contributions of \$251,400 for directed research
- 45 Iowa companies in 29 counties received technical assistance

Impacts

Small Business Development Centers (FY14)

- Assisted 2,677 clients
- 251 new businesses started
- 1,643 jobs created and retained
- Generated \$52+ Million capital infusion
- Sales increased more than \$49 Million
- 115 trainings and workshops for 1,287 participants

Statewide Economic Impact



Program Snapshot FY2010–FY2014

Center for Industrial Research and Service (CIRAS)—
served 3,398 different clients in the last five years.
(includes data from IPRT – Company Assistance)

Small Business Development Center
(SBDC)—served 9,157 different clients in the last five years.

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Request for SBDC

- **Increase of \$294,000 support would enable:**
 - 575 more clients to be served
 - 2,492 more hours of counseling
 - 368 new jobs to be created
 - \$11.1 Million additional capital infusion
 - \$9.7 Million increased sales

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Leading the Bioeconomy: Progress and Future Directions

Sarah Nusser, Vice President for Research

**Robert Brown, Distinguished Professor and
Director, Bioeconomy Institute**

**Brent Shanks, Professor and
Director, Center for Biorenewable Chemicals**

Over the Past Decade, the Biorenewables Industry Became Important Contributor to U.S. and Iowa Economies

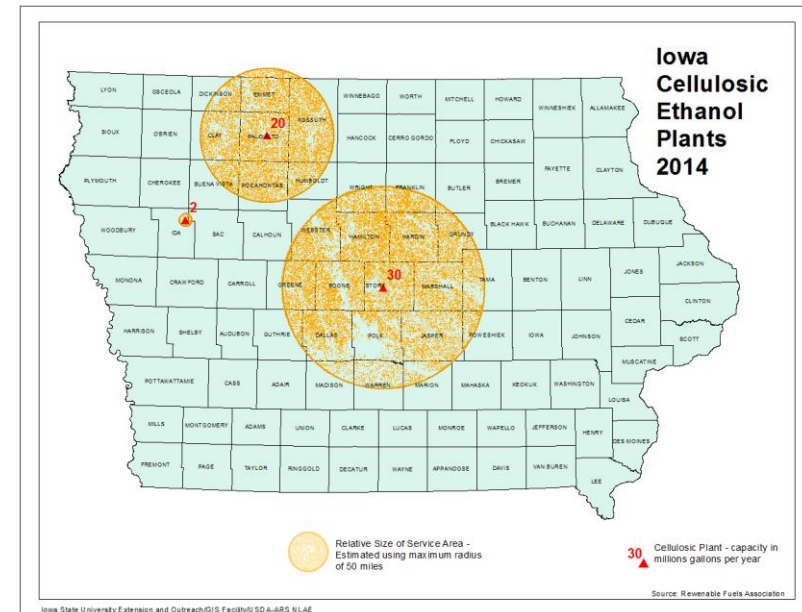
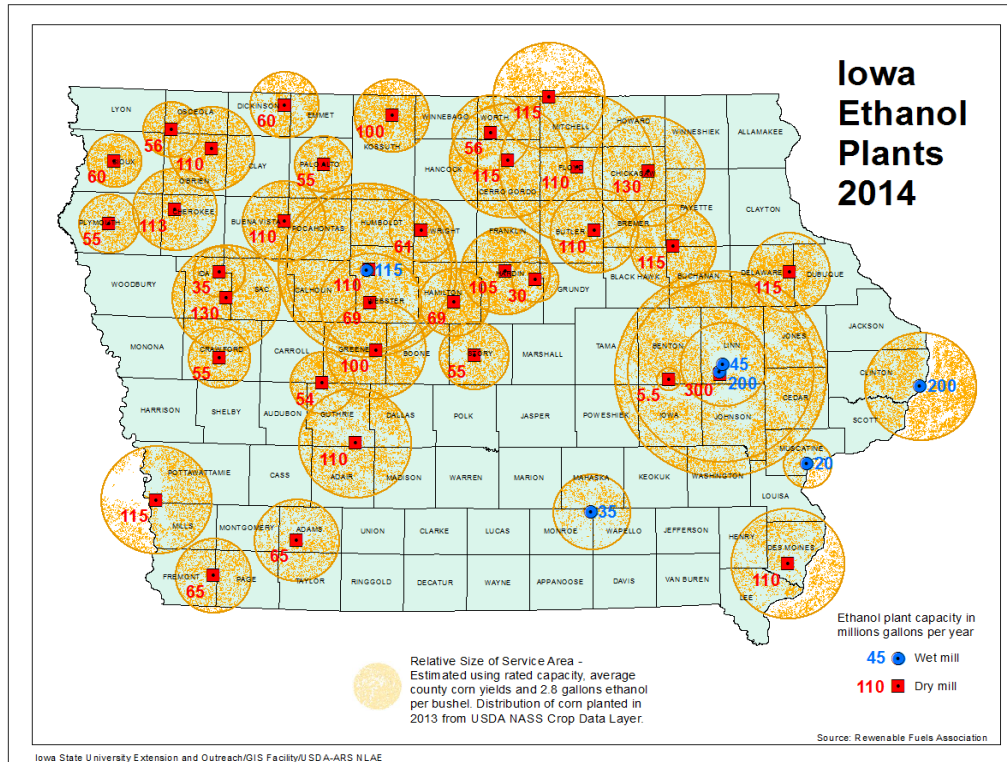
U.S. biofuel production & farm income mushroomed

- Fuel ethanol production grew from 2.1 BG to 13.2 BG
- Biodiesel production grew from 20 MG to 1.1 BG
- Net farm income increased from \$319/acre to \$855/acre

Iowa has been a leading force in the expansion

- Bioeconomy added \$13.1 B to state economic output
- Bioeconomy created and supported almost 50,000 jobs
- ISU faculty attracted over \$100 M from industry and federal government for biobased R&D/education/outreach

Today: Iowa Ethanol & 2G Plants



Biorenewables are at a Crossroads

Challenges

- Ethanol “blend wall”
- EPA performance standards for agriculture and biofuels production
- Misperceptions regarding “food vs fuel”

Opportunities

- Cellulosic ethanol start-ups
- Emerging technologies to produce “drop-in” biofuels
- Emerging opportunities for biopower
- Emerging technologies to produce biobased chemicals

Vision for ISU's continuing partnership with State of Iowa

***Expand the biofuels and
biobased products industries and
create new economic opportunities
for the people of Iowa.***

Leading the Bioeconomy Initiative

Iowa State University is grateful for the investments made by the State of Iowa to build a strong infrastructure for the next generation bioeconomy

We have used these funds to initiate

- Investments in infrastructure and programs
- Programs to translate research into technologies
- Expanded relationships with industry
- Programs to educate, train students and workforce

Returns on investment

- State investments supported \$32.5 M of biorenewables research activities in FY14
- Collaborations with 63 companies
- \$44 M in proposals, with \$20 M awarded to date
 - New NSF Center for Bioplastics and Biocomposites, 24 companies contributing an additional \$0.5 M / yr
 - New \$0.5 M / yr contract with ExxonMobil (pyrolysis)
 - New \$4.8 M from NSF for K-12 outreach in biorenewables with DM schools
- Preparing for a lead role in proposal for DOE / USDA NNMI for Bioprocessing

Specific Impacts: Technologies

New Enzyme Technology for Corn Ethanol Plants

- Increase feed efficiency & oil recovery, conserve energy & water

Improve Corn Stover Logistics

- Training reduced costs, new technologies reduced transportation loads and increased company revenues



Biochar Demonstration Project, with Stine Seed (\$2 M)

- Biochar as soil amendment to improve soil carbon
- Bio-oil for low carbon power at ISU, reduce costs, address mandate to reduce CO₂ emissions by 34%

Specific Impacts: Start-ups & Workforce

Stimulating Technology-Led Entrepreneurship in Biobased Foundry

- Entrepreneurship course and mentoring program
- 9 start-ups in partner/pilot, tech development, and first sales phases

Workforce Development for Biobased Industries

- Over last decade, 900 ISU grads hired in into more than 30 biobased companies
- Biorenewable Resources and Technologies Graduate Program: 70+ students with advanced degrees



Vision for ISU's continuing partnership with State of Iowa

***Expand the biofuels and
biobased products industries and
create new economic opportunities
for the people of Iowa.***

ISU has requested \$5 million per year in recurring state appropriations to assure Iowa's continuing leadership in the bioeconomy

Benefits to Iowa's economy and its people

- Providing technical support to companies already part of Iowa's bioeconomy
- Attracting federal and external dollars to Iowa for research and capital investment in next generation technologies
- Nurturing new company creation and growth through biobased incubator programs
- Developing the workforce for biobased companies

**Thank you for your
consideration**

Questions?